☐ 1: Biochim Biophys Acta 1998 Mar 6;1370(1):138-50 Related Articles, Links

Method of purification affects some interfacial properties of pulmonary surfactant proteins B and C and their mixtures with dipalmitoylphosphatidylcholine.

Taneva SG, Stewart J, Taylor L, Keough KM.

Department of Biochemistry, Memorial University of Newfoundland, St. John's, Newfoundland, A1B 3X9, Canada.

Two methods were employed for preparation of lipid extracts from porcine lung surfactant. Pulmonary surfactant proteins SP-B and SP-C were isolated from the extracts using gel-exclusion chromatography on LH-60 with chloroform:methanol acidified with hydrochloric acid. Monolayers of pure SP-B or SP-C isolated from butanol lipid extracts spread at the air-water interface showed larger molecular areas than those determined in films of SP-B or SP-C isolated from chloroform surfactant extracts. Aqueous dispersions of dipalmitoylphosphatidylcholine (DPPC) supplemented with 2.5 and 5.0 wt% of SP-B or SP-C obtained from butanol extracts adsorbed faster to the air-water interface than their counterparts reconstituted with proteins isolated from chloroform extracts. Surface pressure-area characteristics of spread monolayers of DPPC plus SP-B or SP-C did not depend on the method of isolation of the proteins. The diagrams of the mean molecular areas vs. composition for the monolayers of DPPC plus SP-B or SP-C showed positive deviations from the additivity rule, independently of the procedure used for preparation of lipid extract surfactant. Matrix-assisted laser desorption/ionization spectrometry of the proteins isolated from different extraction solvents was consistent with some differences in the chemical compositions of SP-Bs. Butylation of SP-B during extraction of surfactant pellet with butanol may account for the differences observed in the molecular masses of SP-Bs isolated by the two different extraction protocols. The study suggests that the method of purification of SP-B and SP-C may modify their ability to enhance the adsorption rates of DPPC/protein mixtures, and this may be relevant to the formulation of protein-supplemented lipids for exogenous treatment of pulmonary surfactant insufficiency. Copyright 1998 Elsevier Science B.V.

PMID: 9518582 [PubMed - indexed for MEDLINE]

Display Abstract Show: 20 Sort Send to Text

Write to the Help Desk
NCBI | NLM | NIH
Department of Health & Human Services
Freedom of Information Act | Disclaimer

i686-pc-linux-gnu Jan 21 2003 17:57:06